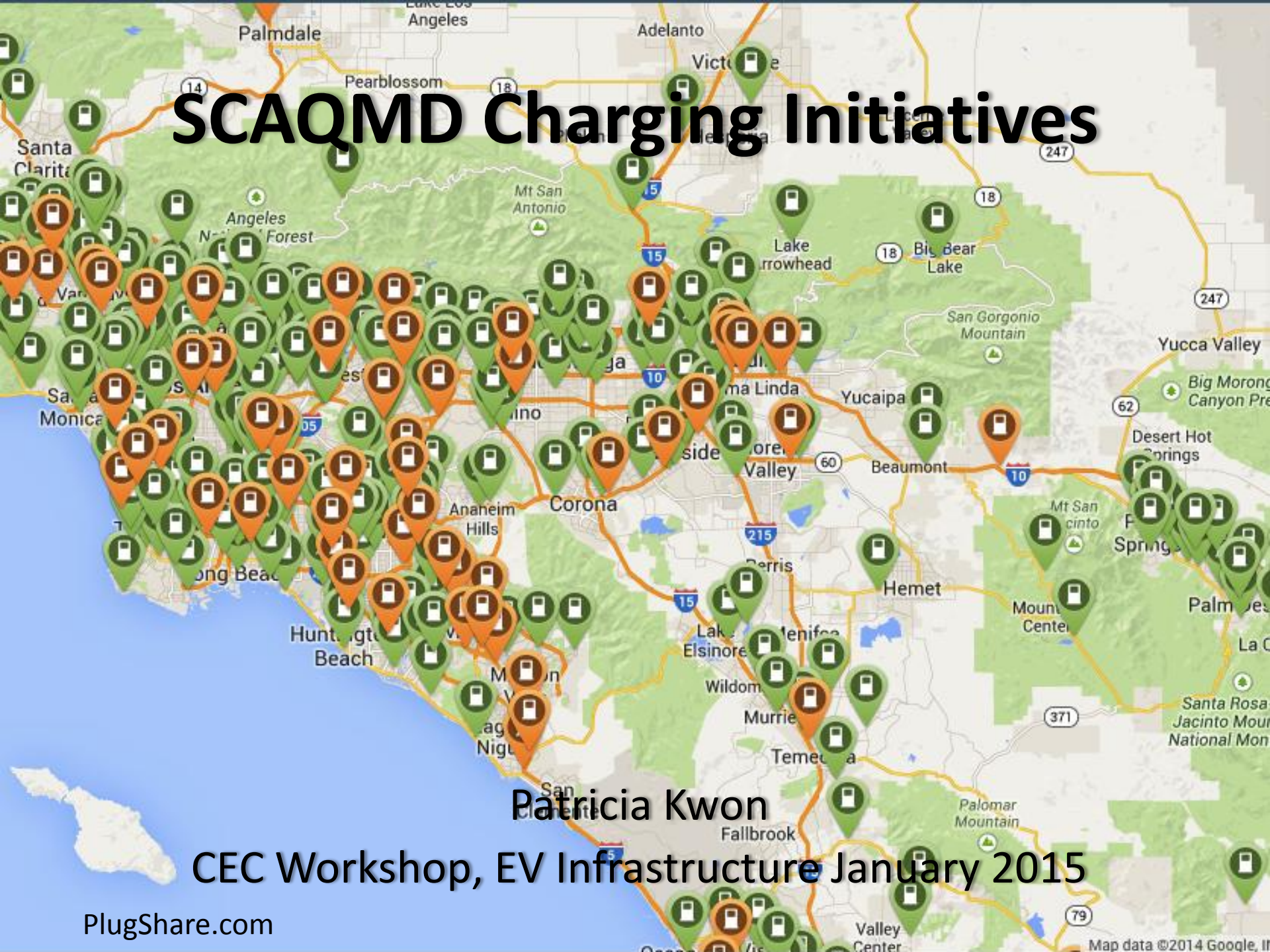


SCAQMD Charging Initiatives



Patricia Kwon

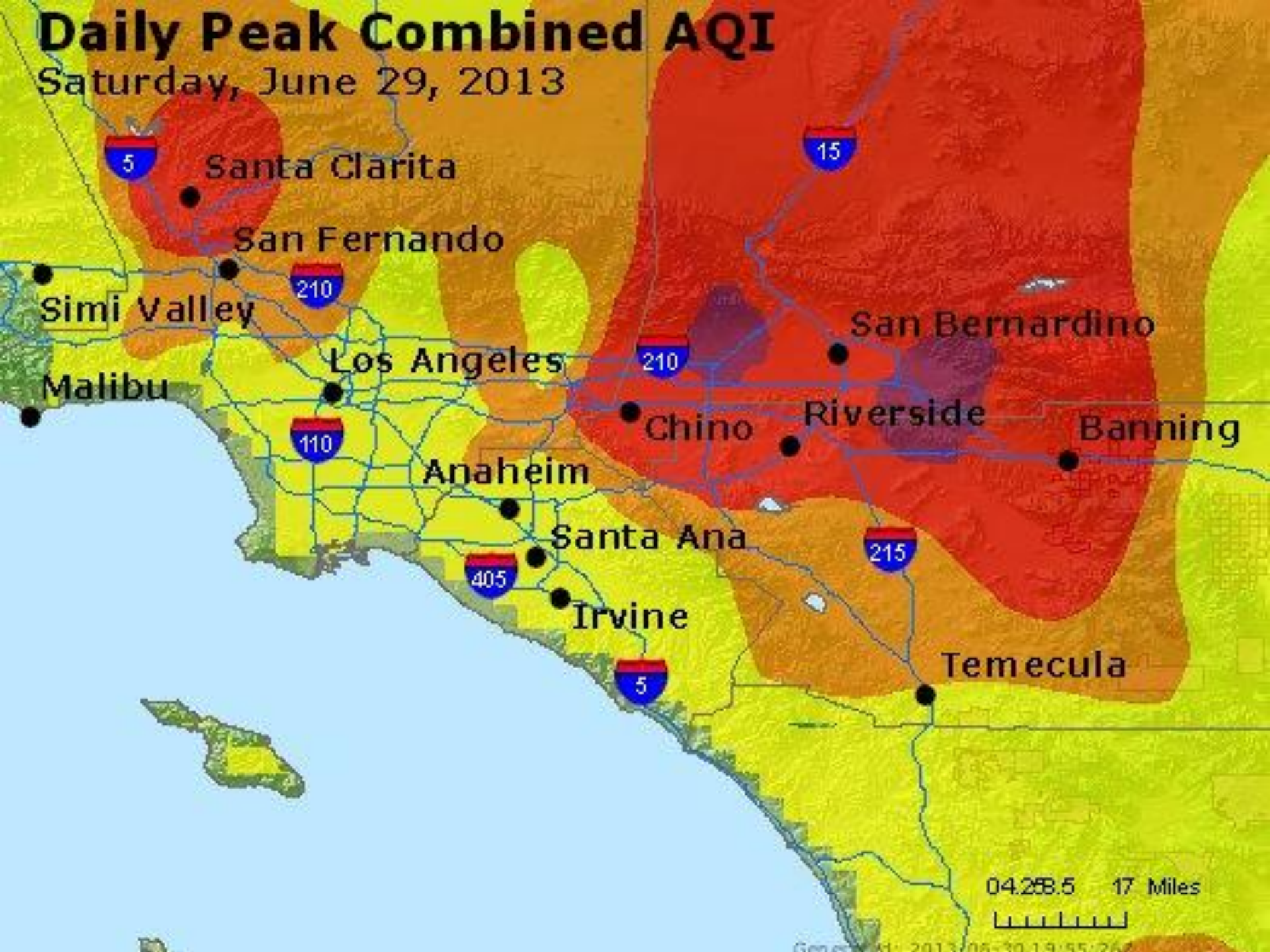
CEC Workshop, EV Infrastructure January 2015

PlugShare.com

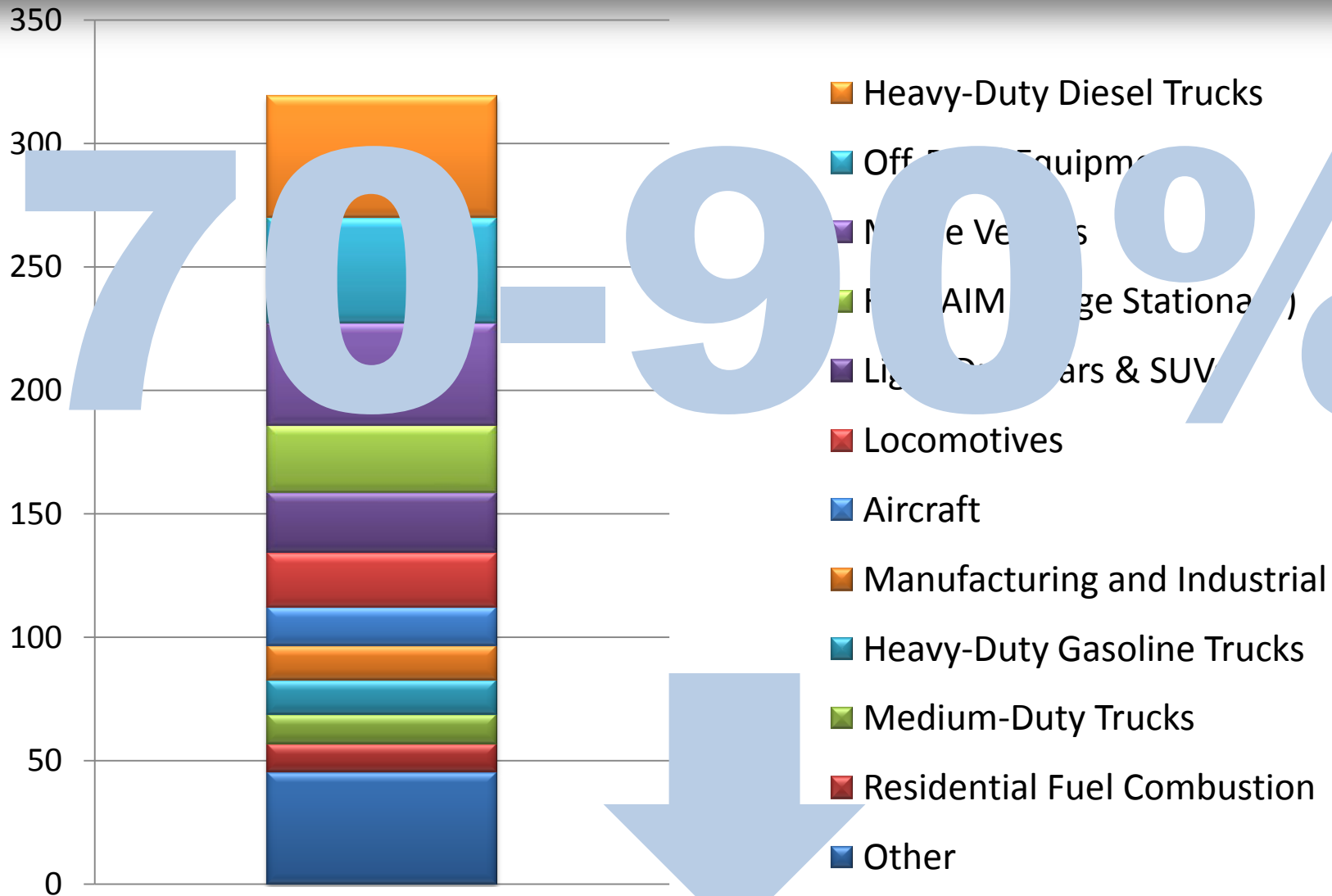
Map data ©2014 Google, Inc.

Daily Peak Combined AQI

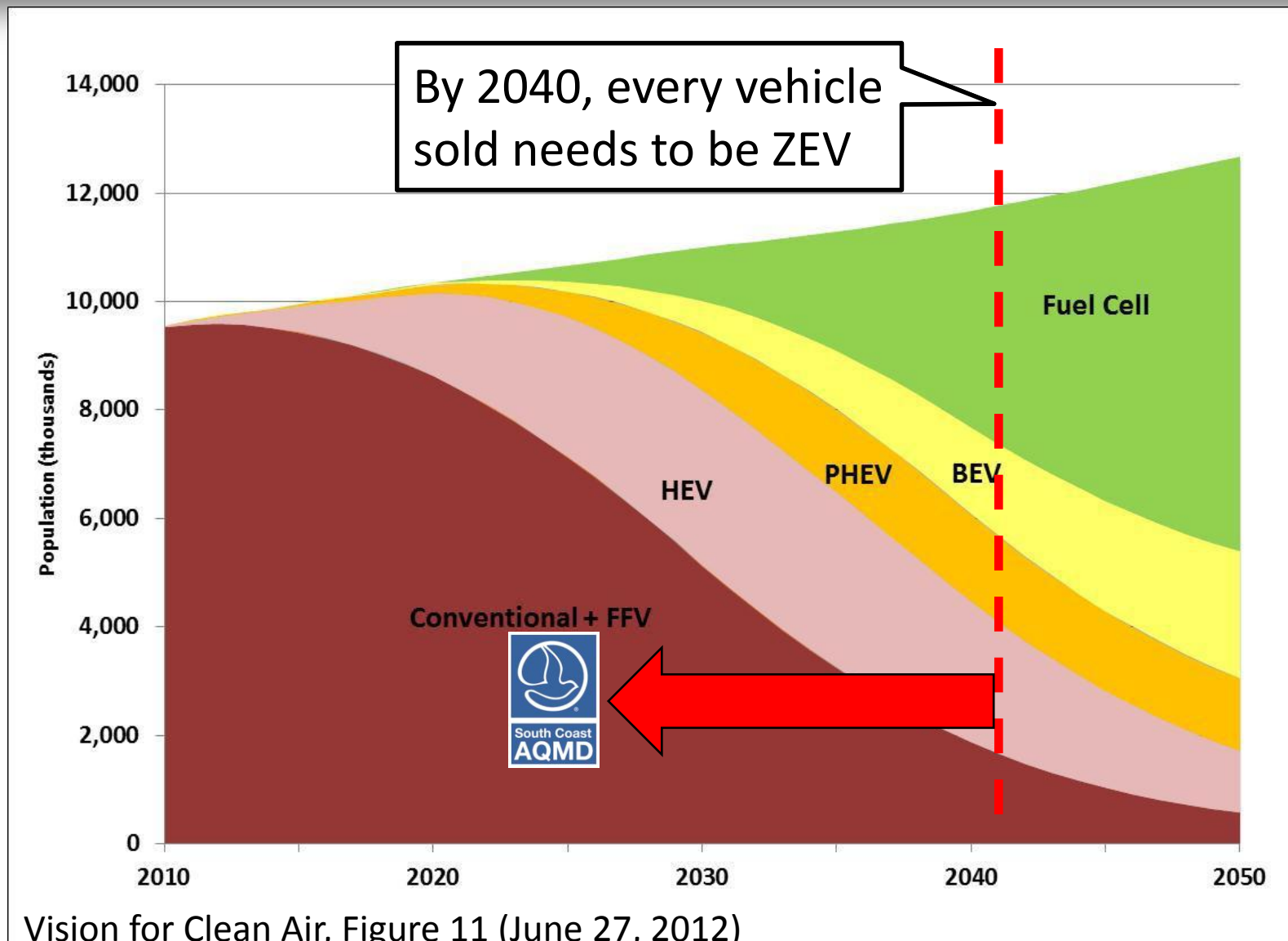
Saturday, June 29, 2013



Top NOx Sources in the Region



Vision for Clean Air Light-Duty Scenario



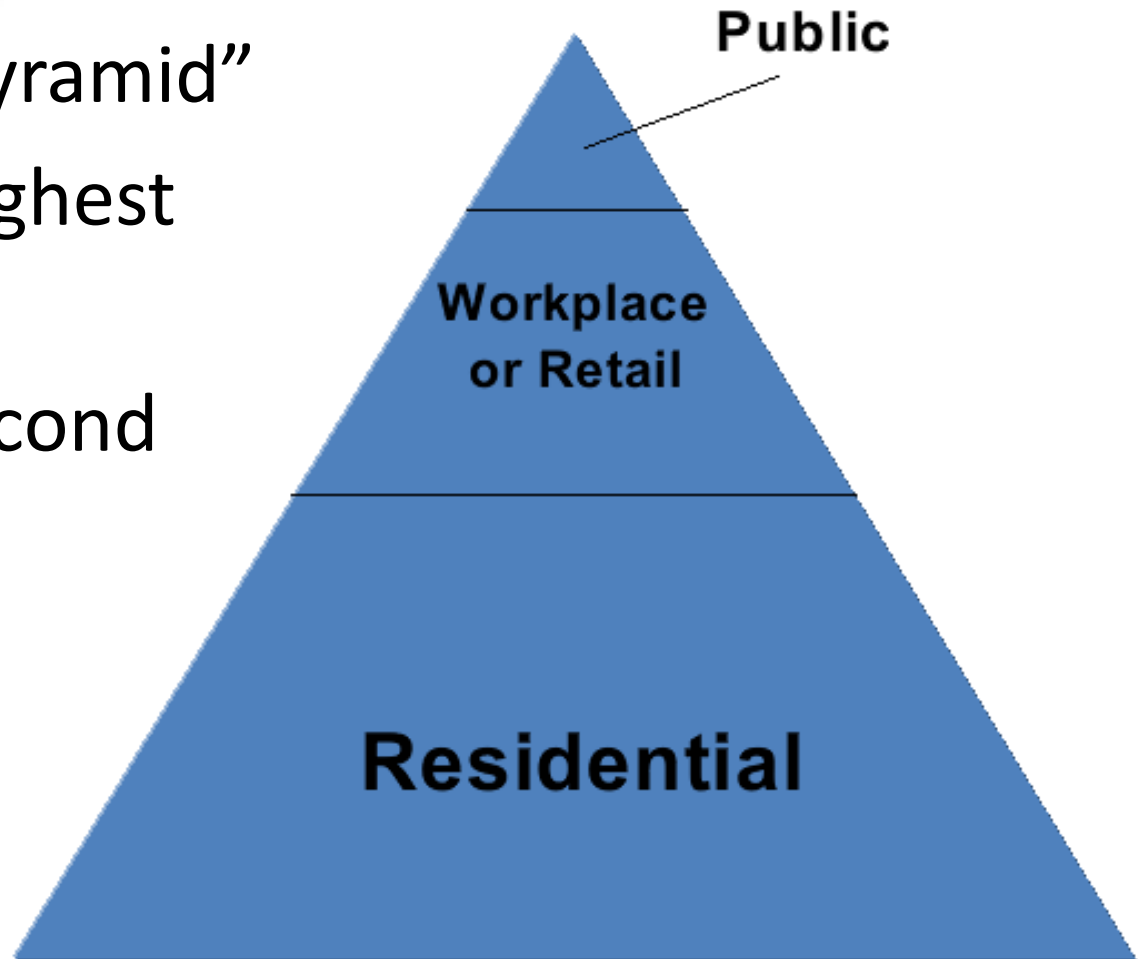
PEV Activities

- Funding agency
 - EVSE deployment (Level 2, DCFC)
 - Goods movement and fleet charging
- PEV readiness efforts
- Other supporting activities
- Compliance with Rule 2202
- Workplace charging at SCAQMD HQ



Infrastructure Priorities

- EPRI priority “pyramid”
- Residential is highest
 - Includes MUDs
- Workplace is second highest priority, particularly for those in MUDs
- Public for DCFC

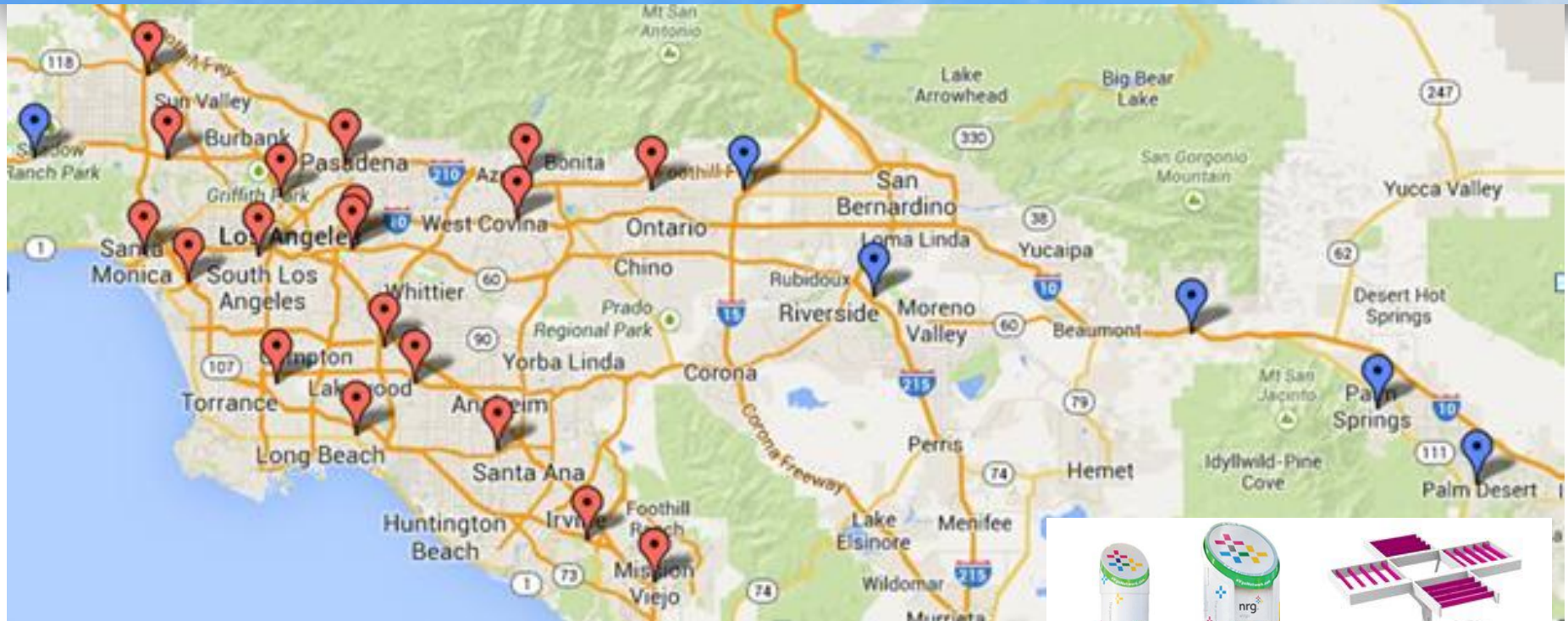


EVSE Deployment

- Completed Level 2 deployment with Chargepoint, ECOtality, Clipper Creek SCAQMD funded \$210k
- SoCalEV – 315+ Level 2 by June 2015 for workplaces and destinations CEC \$840k award
- DC Fast Charging – 26 site network CEC awarded \$1.22M by January 2016



CEC DC Fast Charging Network



- 26 sites near freeways
- CHAdeMO and Combo connectors
- Focus on high utilization sites
- Multiple chargers per site for key locations
- Battery energy storage or solar to reduce demand charges



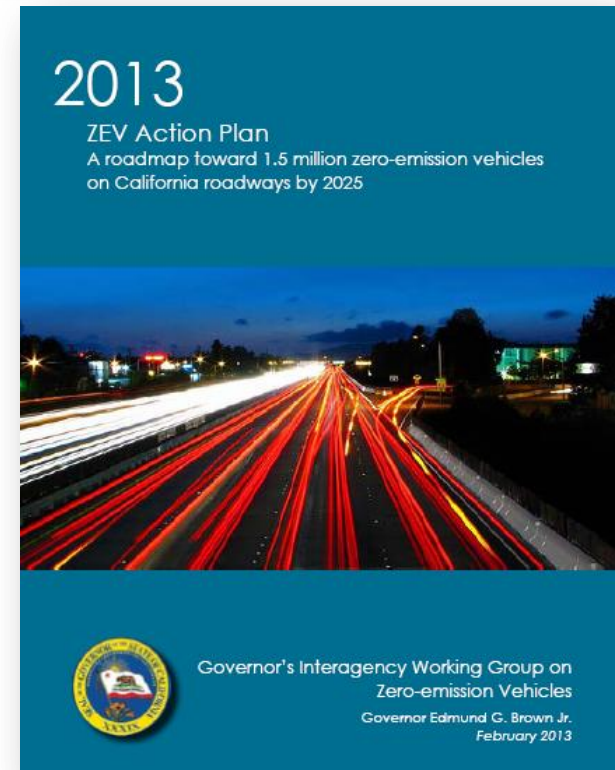
Goods Movement and Fleet Charging

- Next frontier is to have zero-emission miles for
 - Trucks
 - Locomotives
- Especially in highly impacted communities
- Infrastructure availability and cost will be critical
- DOE/EPA/CEC funded fleet projects



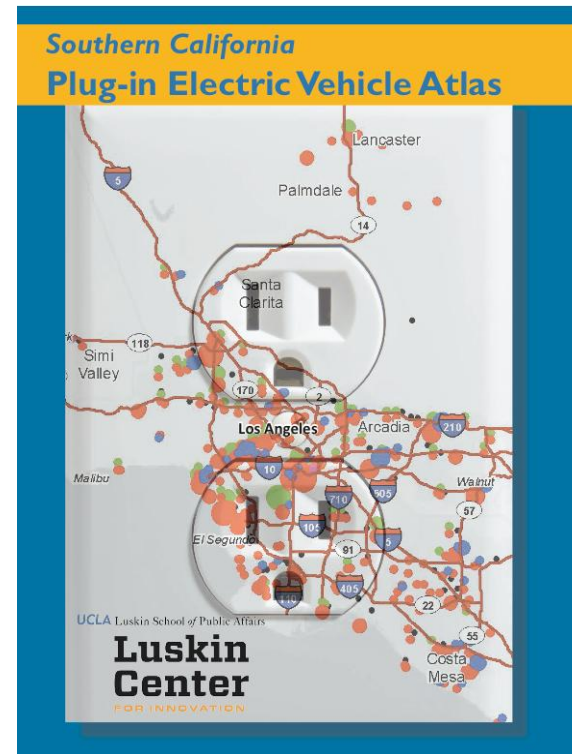
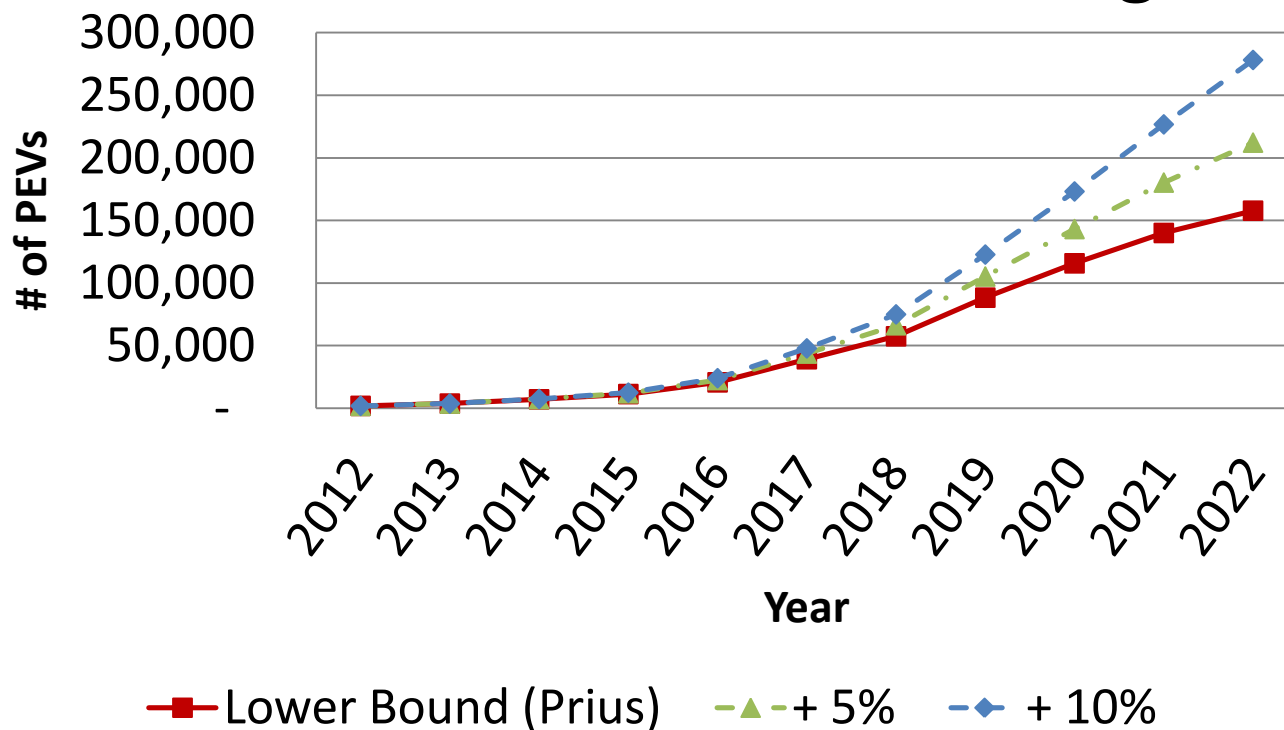
Planning & Analyses

- PEV readiness plans
- Sub-regional studies
- Regional workshops
- CA PEVC working groups
- Identified challenge areas



South Coast PEV Readiness

- DOE grant--Six regional plans + toolkit
- SoCal Plan won APA Planning Excellence Award



City of Los Angeles PEV Sales



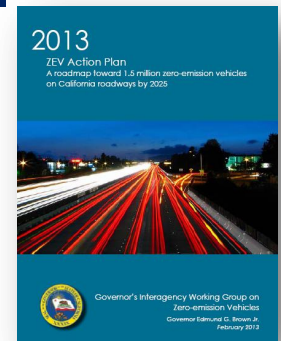
Key Insights

- Five core actions to become PEV ready
 - Zoning and parking
 - Building codes
 - Permitting & inspection
 - Training & education
 - Outreach
- MUD and workplace charging offer greatest challenges & opportunities



Other Supporting Activities

- South Bay Cities BEV study
- UCD Hybrid & EV Research Center
- DOE Workplace Charging Initiative
- CAPEVC & Governor's ZEV Action Plan
- SCE and EDTA engagement
- Alternative fuel best practices & toolkit



Rule 2202

- SCAQMD encourages workplace charging through Rule 2202 (250+ employees)
- 1,400 worksites in SCAB
- Different compliance strategies—installing infrastructure and purchasing PEVs
- Staff revising Rule 2202 emission reduction quantification protocol for EV infrastructure projects



SCAQMD Workplace Charging RFP



- Issued RFP in May 2014 to expand and upgrade EVSE to meet PEV demand
- Existing charging includes 19 ARRA chargers, 3 CEC chargers for employees/public
- 60+ PEVs at site (includes BEVs and pre-2006 employees)
- Evaluating proposals and installation process
- OCCP compliant EVSE, with cost recovery, power management, access control options



Overall Challenges for Workplaces

- Rate structure for transportation vs. efficiency
 - Demand charges (\$39+/kW)*
 - Fleet and opportunity charging
 - Technology solutions?
- EVSE – “Free puppy” problem
 - Free charger but now what?
- Local grid impacts
- Permit fee & installation cost variability
- Accelerating ZEV acceptance



*including demand and delivery charges per kW in peak summer months, noon-6pm



An iceberg floating in the ocean. The tip of the iceberg is visible above the water line, while the much larger, submerged part is below. The sky is blue with some clouds, and the water is a deep blue. The iceberg is white and jagged.

Technologies

- Energy Storage
- Energy Management
- Electricity rates
- Policies
- Access

Market

- Service providers
- Business plan